

What is claimed is:

1. A stapling unit for use with an endoscopic stapling system comprising a first casing adapted to be advanced along an endoscope to a predetermined location within a body lumen, the first casing having a distal end, a proximal end and a stapling device mounted thereto adjacent to a first window extending through a periphery of the first casing.
2. The stapling unit of claim 1, wherein a perimeter and shape of the first window are fixed.
3. The stapling unit of claim 1, wherein the stapling device is movably coupled to the first casing for movement between a tissue receiving position in which a first portion of the first window is uncovered by the stapling device, and a stapling position in which a second portion of the first window is uncovered by the stapling device, the first portion being larger than the second portion.
4. The stapling unit of claim 3, wherein, when in the stapling position, a stapling head of the stapling device is separated from an anvil by a predetermined stapling distance.
5. The stapling unit of claim 4, wherein the anvil is formed on a perimeter of the first window.
6. The stapling unit of claim 5, wherein the stapling device further comprises a position adjusting mechanism for adjusting the predetermined stapling distance.
7. The stapling unit of claim 3, wherein the stapling device is mounted to the first casing for movement along a longitudinal axis thereof.
8. The stapling unit of claim 3, wherein the stapling device is mounted to the first

casing for rotation relative thereto.

9. The stapling unit of claim 3, further comprising a stapling actuating mechanism coupled between a proximal end of the unit and the stapling device, actuation of the stapling actuating mechanism moving the stapling device between the tissue receiving position and the stapling position to staple the tissue received in the second portion of the first window, wherein the proximal end of the unit remains outside of a patient's body during use.

10. The stapling unit of claim 8, wherein the stapling device is mounted on a second casing, the second casing having a distal end and a proximal end, the distal end of the second casing being coupled to the distal end of the first casing, the second casing having a second window, which, when the stapling device and the first casing are in a predetermined alignment with respect to one another, faces the first window forming an opening extending from an interior of the second casing to an exterior of the first casing.

11. The stapling unit of claim 3, further comprising a tissue cutter movably mounted to the stapling device and the first casing adjacent to the first window for movement between a retracted position and a tissue cutting position.

12. The stapling unit of claim 11, further comprising a cutting actuating mechanism coupled between a proximal end of the unit and the tissue cutter, actuation of the cutting actuating mechanism moving the tissue cutter between the retracted position and the tissue cutting position to cut the tissue received in the second portion of the first window, wherein the proximal end of the unit remains outside of a patient's body during use.

13. The stapling unit of claim 12, wherein the tissue cutter further comprises a safety mechanism for selectively locking the tissue cutter in the retracted position.

14. The stapling unit of claim 11, wherein the tissue cutter is moved relative to the first window along a longitudinal axis of the first casing.

15. The stapling unit of claim 11, wherein the tissue cutter is rotated relative to the first window.

16. The stapling unit of claim 15, wherein a cutting edge of the tissue cutter is angled such that a first portion of the cutting edge contacts a portion of tissue to be cut before a second portion of the cutting edge.

17. The stapling unit of claim 16, wherein the cutting edge comprises an angled blade.

18. The stapling unit of claim 15, wherein the tissue cutter is mounted on a third casing, the third casing having a proximal end and a distal end, the distal end of the third casing being coupled to the distal end of the first casing, the third casing having a third window, which, when the tissue cutter, stapling device and first casing are in a predetermined alignment with respect to one another, faces the first window forming an opening extending from an interior of the third casing to an exterior of the first casing.

19. A device for stapling tissue within a body lumen comprising:

a first tube extending from a proximal portion to a distal portion, wherein, in an operative position, the distal portion is located within the body lumen adjacent to a portion of tissue to be stapled, the first tube having a first window extending therethrough into an interior of the distal portion thereof, at least one edge of the first window forming an anvil;

a stapling mechanism moveably mounted within the distal portion;

a position adjusting mechanism coupled between the first tube and the stapling mechanism for moving the stapling mechanism relative to the first tube to vary a size of a first portion of the window covered by the stapling mechanism.

20. The device of claim 19, wherein the first portion of the first window increases when the stapling mechanism is moved from a stapler retracted position to a stapler engaged position.

21. The device of claim 19, wherein the stapling mechanism moves relative to the first tube along a longitudinal axis of the first tube.

22. The device of claim 19, wherein the stapling mechanism rotates relative to the first tube around a longitudinal axis of the first tube.

23. The device of claim 19, wherein the stapling mechanism is mounted on a first at least partially tubular member resting within the first tube, the first at least partially tubular member having a second window extending there through, wherein, when the stapling mechanism and the first tube are in a predetermined first alignment with respect to one another, the second window faces the first window forming an opening extending from an interior of the first at least partially tubular member to an exterior of the first tube.

24. The device of claim 23, wherein the second window has a staple firing edge facing the anvil.

25. The device of claim 23, further comprising a tissue cutter movably mounted within the first tube.

26. The device of claim 25, further comprising a cutting actuating mechanism coupled between a proximal end of the device and the tissue cutter for moving the tissue cutter relative to the first tube between a cutter retracted position and a cutter

engaged position, wherein, during use of the device, the proximal end of the device remains outside a patient's body.

27. The device of claim 26, wherein a size of a second portion of the first window which is covered by the tissue cutter increases when the tissue cutter is moved from the cutter retracted position to the cutter engaged position.

28. The device of claim 27, wherein the first window becomes entirely covered when the tissue cutter is moved from the cutter engaged position to a cutter complete position to sever the tissue received within the first window.

29. The device of claim 28, wherein the cutting mechanism covers the second portion of the first window by moving relative to the first tube along a longitudinal axis of the first tube.

30. The device of claim 28, wherein the cutting mechanism covers the second portion of the first window by rotating relative to the first tube around a longitudinal axis of the first tube.

31. The device of claim 30, wherein the tissue cutter is mounted on a second at least partially tubular member resting within the first tube and the first at least partially tubular member, the second at least partially tubular member having a third window extending there through, wherein, when the tissue cutter, the first at least partially tubular member and the first tube are in a predetermined second alignment with respect to one another, faces the first and second windows to form a cutter opening extending from an interior of the second at least partially tubular member an exterior of the first tube.

32. The device of claim 31, wherein the third window has at least one cutting edge.

33. The device of claim 32, wherein the cutting edge is angled such that a first portion of the cutting edge contacts a portion of tissue to be cut before a second portion of the cutting edge.

34. A method for stapling tissue within a body lumen comprising the steps of:

advancing a stapling unit along an endoscope to a location within a body lumen adjacent to a portion of tissue to be stapled, the stapling unit comprising a first casing having a distal end, a proximal end, a first window extending through a periphery of the first casing, and a stapling device;

drawing the portion of tissue to be stapled into the first window;

moving a member of the stapling device relative to the first casing to cover a first portion of the first window and grasp the portion of tissue to be stapled therein; and

operating the stapling device to staple the portion of tissue grasped therein.

35. The method of claim 34, wherein the first window has a fixed perimeter and fixed shape.

36. The method of claim 34, further comprising the step of, prior to drawing the portion of tissue to be stapled into the first window, withdrawing the stapling device to open a second portion of the first window to an interior of the first casing.

37. The method of claim 34, wherein the stapling device further comprises a position adjusting mechanism for adjusting a size of the first portion of the first window.

38. The method of claim 37, wherein the step of stapling the portion of tissue

grasped therein comprises adjusting a size of the first portion of the first window to create a desired staple distance, and then firing a plurality of staples from a cartridge through the portion of tissue to be stapled.

39. The method of claim 34, wherein the stapling device is moved relative to the first casing along a longitudinal axis of the first casing.

40. The method of claim 34, wherein the stapling device is moved by rotation relative to the first casing.

41. The method of claim 40, wherein the stapling step comprises adjusting a size of the first portion of the first window to achieve a desired staple distance.

42. The method of claim 41, wherein at least one edge of the first window forms an anvil.

43. The method of claim 42, wherein the edge of the first window that forms the anvil is a longitudinal edge.

44. The method of claim 42, wherein the stapling device has a staple firing edge facing the anvil.

45. The method of claim 44, wherein the desired staple distance is a function of a distance between the staple firing edge and the anvil along a circumferential direction of the first casing, the distance decreasing when a position adjusting mechanism increases the size of the first portion of the first window.

46. The method of claim 34, wherein the step of drawing a portion of tissue to be stapled into the first window comprises creating negative pressure within the first window and sucking the portion of tissue to be stapled into the first window.

47. The method of claim 34, wherein the step of drawing a portion of tissue to be stapled into the first window comprises grasping the portion of tissue to be stapled and pulling the grasped portion of tissue through the first window.

48. The method of claim 40, wherein the stapling device is mounted on a second casing, the second casing having a distal end and a proximal end, the distal end resting within the distal end of the first casing, the second casing having a second window, which, when the stapling device and the first casing are in a predetermined alignment with respect to one another, faces the first window forming an opening extending from an interior of the second casing to an exterior of the first casing.

49. The method of claim 48, wherein the step of drawing the portion of tissue into the first window comprises drawing the portion of tissue through the opening.

50. The method of claim 49, wherein at least one edge of the first window forms an anvil.

51. The method of claim 50, wherein the second window has a staple firing edge facing the anvil.

52. The method of claim 51, wherein the step of moving the stapling device comprises moving the second casing to bring the staple firing edge closer to the anvil, grasping the portion of tissue to be stapled between the staple firing edge and the anvil.

53. The method of claim 52, wherein the step of drawing the portion of tissue to be stapled through the opening comprises creating negative pressure within the second casing and sucking the portion of tissue through the opening between the staple firing edge and the anvil.

54. The method of claim 52, wherein the step of drawing a portion of tissue to be

stapled through the opening comprises grasping the portion of tissue to be stapled and pulling the grasped portion of tissue through the opening between the staple firing edge and the anvil.

55. The method of claim 35, further comprising the step of, after the tissue has been stapled, severing a portion of the tissue.

56. The method of claim 55, further comprising the step of moving a tissue cutter to completely cover the first window after the portion of tissue has been severed to contain the severed portion of tissue within the first casing.